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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/751,082	12/31/2003	Everardo D. Ruiz	ITL.1089US (P18427)	1320
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TROP PRUNER & HU, PC 1616 S. VOSS ROAD, SUITE 750 HOUSTON, TX 77057-2631			EXAMINER TRAN, DZUNG D	
			ART UNIT 2613	PAPER NUMBER
			MAIL DATE 05/02/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/751,082

Applicant(s)

RUIZ, EVERARDO D.

Examiner

Dzung D. Tran

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

#### ***Claim Rejections - 35 USC § 101***

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

The claimed invention is directed to non-statutory subject matter. In claims 1-8, it claimed the method for optically isolating a RF signal or low frequency signal which is directed to non-statutory subject matter.

#### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35

U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-13, 15-19 and 21-24 are rejected under 35 U.S.C. 102(e) as

being anticipated by Aburakawa US Publication no. 2002/0030870.

Regarding claim 1, Aburakawa discloses in Figures 2, 7 and 9, a method comprising:

a frequency converter 66 (e.g., IF to RF converter) for optically isolating a radio frequency component from a lower frequency component of a transceiver.

Regarding claim 2, Aburakawa further discloses in Figure 2, an optical bus 22 for optically isolating a radio frequency power amplifier 233, 234.

Regarding claim 3, Aburakawa discloses in Figure 2, the optical bus 22 for optically isolating a low noise amplifier (e.g., IF signal).

Regarding claim 4, Aburakawa further discloses in Figure 2, the optical bus 22 for optically isolating frequency conversion stages 65, 66.

Regarding claim 5, Aburakawa discloses the method including linking the radio frequency component and lower frequency component with an optical waveguide 22.

Regarding claim 6, Aburakawa discloses an analog/optical converter 65 for converting a radio frequency signal to an optical signal using a laser.

Regarding claim 7, Aburakawa discloses a modulator 91 for optically isolating the radio frequency component from a baseband component.

Regarding claim 8, Aburakawa discloses converter 94 (e.g., IF to RF converter) for optically isolating the radio frequency component from an intermediate frequency component.

Regarding claim 9, Aburakawa discloses in Figure 2, a wireless device comprising:

a radio frequency component 64 (e.g., TR2 );

a lower frequency component 92 to operate at a frequency lower than radio frequency (e.g., D/A or A/D); and

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an optical link 22 to link said components.

Regarding claim 10, Aburakawa discloses wherein said radio frequency component is a power amplifier 233, 234.

Regarding claim 11, Aburakawa discloses wherein said radio frequency component is a low noise amplifier 233, 234.

Regarding claim 12, Aburakawa discloses the device further including a receiver (e.g., O/E 65).

Regarding claim 13, Aburakawa discloses the device further including a transmitter (e.g., E/O 65).

Regarding claim 15, Aburakawa discloses wherein said lower frequency component 91 is a baseband component.

Regarding claim 16, Aburakawa discloses wherein said lower frequency component is an intermediate frequency component (e.g., IF signal, see Figure 2).

Regarding claim 17, Aburakawa discloses in Figure 2, a system comprising:

a controller (i.e., to communication control station);

a radio frequency component 64 (e.g., TR2);

a lower frequency component 92 (e.g., D/A or A/D);

an optical link 22 to link said components; and

a wireless interface 20, 21 coupled to said radio frequency component(e.g., delivery equipment 62).

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Regarding claim 18, Aburakawa discloses wherein said radio frequency component is a power amplifier 233, 234.

Regarding claim 19, Aburakawa discloses wherein said radio frequency component is a low noise amplifier 233, 234.

Regarding claim 21, Aburakawa discloses the device further including a receiver (e.g., O/E 65).

Regarding claim 22, Aburakawa discloses the device further including a transmitter (e.g., E/O 65).

Regarding claim 23, Aburakawa discloses wherein said lower frequency component 91 is a baseband component.

Regarding claim 24, Aburakawa discloses wherein said lower frequency component is an intermediate frequency component (e.g., IF signal, see Figure 2).

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 14, 20 and 25 rejected under 35 U.S.C. 103(a) as being unpatentable over Aburakawa US Publication no. 2002/0030870.

Regarding claims 14 and 20, Aburakawa further discloses the device including two frequency conversion stages 168 and 182. Aburakawa does not specifically disclose for an optical isolator between said conversion stages. However, Examiner take an official notice that optical isolator is well known in the art and it would have been obvious to an artisan at the time of the invention was made to impose the optical isolator between the conversion stages in the system of Aburakawa. One of ordinary skill in the art would have been motivated to do that in order to isolated the IF and RF signals. Thus, it reduces the signal interference.

Regarding claim 25, Aburakawa discloses in Figure 2 the TR2 52, 64 including the antenna, Aburakawa deos not specifically disclose antenna is a dipole antenna. However, dipole antenna for transmitting a RF signal is well known in the art. Examiner take an official notice that a dipole antenna is well recognized in the art, and it would have been obvious to an artisan at the time of the invention was made to include the dipole antenna in the system of Aburakawa. One of ordinary skill in the art would have been motivated to do that in order to transmit and receive the RF signals by one antenna. Thus, it reduces the space of the device.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-25 have been considered but are moot in view of the new ground(s) of rejection.

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**Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dzung D Tran whose telephone number is (571) 272-3025. The examiner can normally be reached on 9:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DZUNG TRAN  
PRIMARY PATENT EXAMINER

Dzung Tran  
04/28/2007